



Introduction to Lean Six Sigma in Rural Hospitals



Webinar 1 March 25, 2020

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Lean Healthcare Black Belt



Welcome to this Three Part Series: *Introduction to Lean Six Sigma in Rural Hospitals*



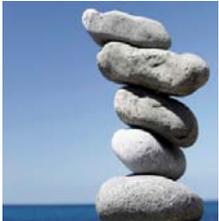
- Start “thinking Lean”
- Understand the Lean methodology
- Basic knowledge on Lean tools for removing waste and enhancing customer value
- Begin to apply Lean in your work
- Basic knowledge of the concept of Six Sigma



Today's Agenda

An introduction to Lean principles, methodology, tools and terminology

- Identifying Waste
- Voice of the Customer
- Flow in an Organization
- Engagement Exercise

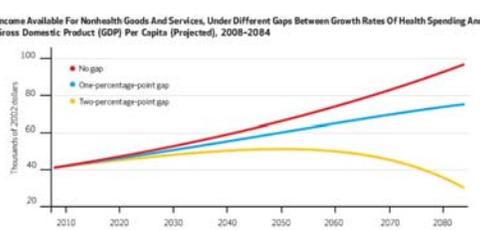


The First Question to Ask is:



Why Should We Do This As Healthcare Providers?
Why Should My Organization Undertake Lean?

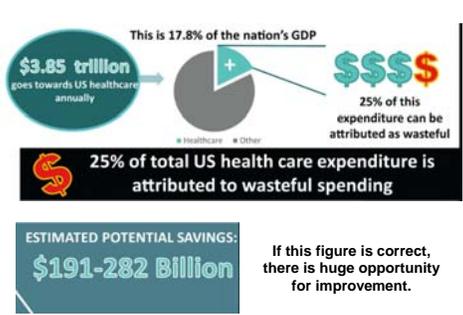
The health care cost curve will bend...because it has to



Income Available For Nonhealth Goods And Services, Under Different Gaps Between Growth Rates Of Health Spending And Gross Domestic Product (GDP) Per Capita (Projected), 2008-2084

What we are doing is not Sustainable!

Healthcare Spending in the US



\$3.85 trillion goes towards US healthcare annually

This is 17.8% of the nation's GDP

25% of this expenditure can be attributed as wasteful

25% of total US health care expenditure is attributed to wasteful spending

ESTIMATED POTENTIAL SAVINGS: \$191-282 Billion

If this figure is correct, there is huge opportunity for improvement.

Introduction to Lean Concepts

Think about this question:

When you are buying a product or service for yourself, what is the first thing you look for?

- Price
- On-time delivery
- Quality
- Service



Introduction to Lean Concepts

That is difficult to answer without a specific product or service in mind.

You look for value.

Whether you are buying a \$40,000 car or a week's supply of vegetables, the price, availability, the quality and service all have a place in your decision making.



Our patients and customers use the same kind of decision making as you do.

Patients and clients expect the best possible balance of price, availability, quality, and service.

They expect top value.





Why Lean?

- Increasing customer expectations
- Pressure for greater accountability and transparency
- Tight and shrinking budgets
- Shrinking workforce and increasing need for a more skilled workforce.

Lean helps us improve quality, reduce costs, increase customer and employee satisfaction, & capture knowledge



Introduction to Lean Concepts

Why isn't every organization Lean?

A part of the problem stems from the belief that hospitals ARE unique and different.



Everyone has to be convinced to get on board. Management has to provide the necessary support.



What is Lean?

- A time-tested method and set of tools to help us improve "how" we produce our products and services.
- Lean is also a mindset, where we ask each day "How can we make our services better for customers?"



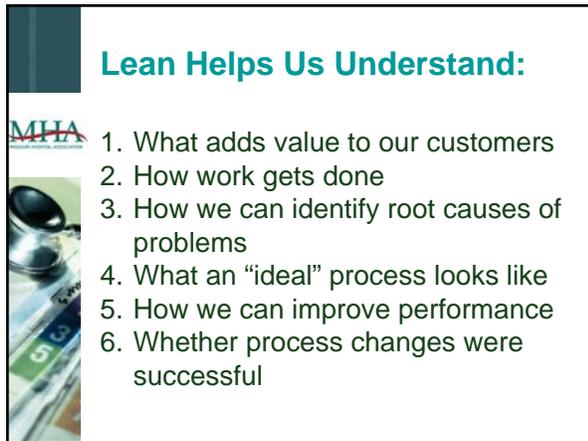
History of Lean

- Continuous improvement originated in 1920s with Walter Shewart and Bell Laboratories
- Early founders: Joseph Juran and W. Edwards Deming
- Refined by and attributed to Toyota Motor Corporation in early 1960s (Toyota Production System)
- Now successfully adopted across all organizations and sectors



Lean Helps Us Understand:

1. What adds value to our customers
2. How work gets done
3. How we can identify root causes of problems
4. What an "ideal" process looks like
5. How we can improve performance
6. Whether process changes were successful



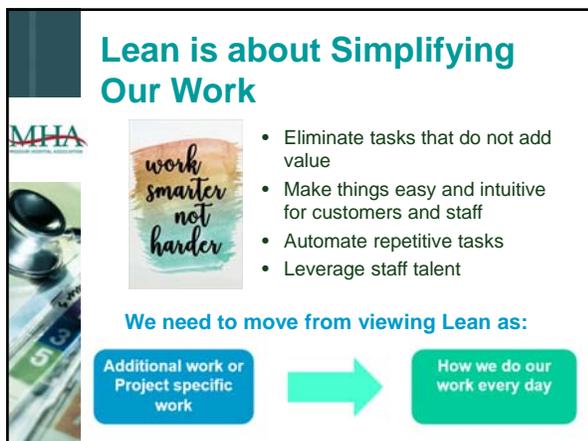
Lean is about Simplifying Our Work

- Eliminate tasks that do not add value
- Make things easy and intuitive for customers and staff
- Automate repetitive tasks
- Leverage staff talent

work smarter not harder

We need to move from viewing Lean as:

Additional work or Project specific work → How we do our work every day



Lean is About Removing “Waste”

Less than 30% of the tasks in a process add value from the customer’s perspective

Lean is NOT...

- Not an acronym (LEAN)
- Not a diet
- Not a solution to personnel or performance issues
- Not an initiative to reduce headcount – it’s about improving service
- Not a silver bullet or quick fix
- Not a replacement for Six Sigma – it is complementary
- Not a “manufacturing thing”

Lean does NOT require special expertise

Why Focus on Process?

85%
of improvement opportunities are here

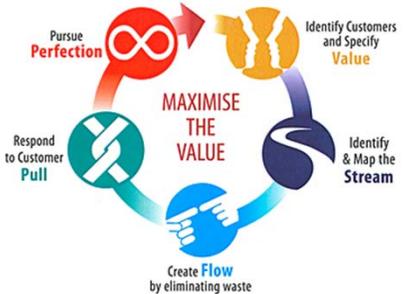
“A bad process will beat a good person every time”

- W. Edwards Deming



Introduction to Lean Concepts

There are five guiding principles in Lean:





Lean Thinking Principles for Healthcare

Principle	Lean Hospitals Must:
Value	Specify value from the standpoint of the end customer (the patient).
Value Stream	Identify all the value-added steps across department boundaries (the value stream), eliminating steps that do not create value.
Flow	Keep the process flowing smoothly by eliminating causes of delay, such as batches and quality problems.
Pull	Avoid pushing work on the next process or department; let work and supplies be pulled, as needed.
Perfection	Pursue perfection through continuous improvement



Introduction to Lean Concepts

How are costs affected?

Lean initiatives typically result in dramatically reduced costs for the same level of service.

Reduce the
COST
of Care!

Improve
Reliability
& **SAFETY**

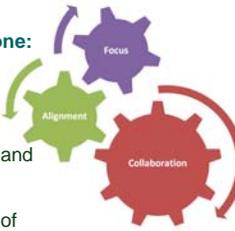
Increase the
QUALITY
of Care!

It becomes possible to improve both quality and quantity of service without negatively affecting the budget.

Introduction to Lean Concepts

Lean requires that everyone:

- Learn new tools and techniques
- Develop new processes and follow new procedures
- Question the perception of what has value and how to measure it
- A BIG change in culture



Introduction to Lean Concepts

There are many tools and components that will help you as you implement Lean.

On your journey, remember that each component contains only part of the answer.



When the components are combined into an inter-related system that everyone learns and puts into continuous practice, you are developing a LEAN culture.



Introduction to Lean Concepts

There are many tools in the **Lean Toolbox**. Knowing them and using them correctly is critical. Some of the more common tools that you might use are:

- Value Stream Mapping
- A3 Problem Solving
- Root Cause Analysis
- 5S Workplace Organization
- Standard Work
- Mistake Proofing
- Flow/Work Cells
- Heijunka
- Kanban/Supermarkets
- Quick Changeover (Turnover)
- Kaizen Events



Eight Areas of Waste in Healthcare



Seeing with "New Eyes"

As you learn to "see" your processes in new ways, you develop what are called "eyes for waste" so that you can first identify wastes and then eliminate them in a systematic way.



This is a primary focus of Lean.

Anything that adds cost or time without adding value as defined by the primary customer is **WASTE**.

Muda = waste



Value is defined as any activity within a process that is essential to delivering what a customer will pay for.

Lean practitioners often categorize all work in one of three groups:



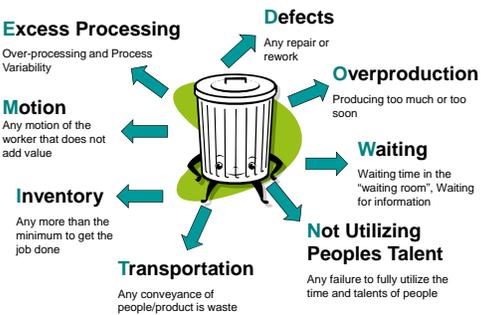
Value-Added Work is any activity that transforms the product or any service that our client (or patient) is willing to pay for.

Non-Value-Added but required Work is any activity that does NOT add value as defined above, but is currently required in order to deliver the product or service to the client or patient. (e.g., regulations)



Non-Value-Added Work is any activity that consumes time and/or resources, but does not add any value.

8 Types of Wastes – “DOWNTIME”

- Excess Processing**: Over-processing and Process Variability
- Defects**: Any repair or rework
- Overproduction**: Producing too much or too soon
- Waiting**: Waiting time in the "waiting room", Waiting for information
- Not Utilizing Peoples Talent**: Any failure to fully utilize the time and talents of people
- Transportation**: Any conveyance of people/product is waste
- Inventory**: Any more than the minimum to get the job done
- Motion**: Any motion of the worker that does not add value

Waste of **overproduction** happens whenever a process step produces faster than, earlier than, or more than the next step in the process can handle.



This includes doing more than what is needed by the patient or doing it sooner than needed.

A broad example of this is the performance of unnecessary diagnostic procedures.

Examples of Overproduction

- Making **more** than is required by the next process
- Making it **earlier** than is required by the next process
- Making it **faster** than is required by the next process



- ✓ Pills given out early
- ✓ Multiple bosses & multiple jobs cause wrong order of jobs
- ✓ Duplication of tests

Overproduction

occurs because we don't always know the process order that will best meet the demand.

This leads to imbalance of work and doing the wrong thing at the wrong time – often for what we believe are the right reasons.



Waste of Inventory

Hospitals create waste when they incur excess inventory costs, storage and movement costs, spoilage and waste.



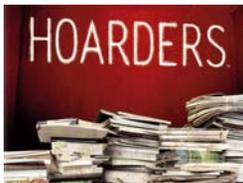
One example is letting supplies expire and then disposing of them, including out-of-date medications.



An unfortunate side effect of inventory problems is “hoarding.”



When practitioners and staff do not trust inventory management, they hoard extras away, which generally just makes the overall inventory problem worse!



Waste of Inventory



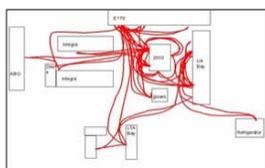
When either raw inventory or work-in-process inventory is sitting idle, it still consumes time and space and adds cost.

CENTRALIZATION Vs DECENTRALIZATION

The Waste of Transportation



Unnecessarily moving patients, specimens or materials throughout a system is wasteful. This type of waste is evident when the hospital has a poor layout, such as a catheter lab located a long distance from the emergency department.



Any unnecessary travel experienced by a person or material between processing steps is **Waste of Transportation.**

Examples of the Waste of Transportation



- ✓ Moving same patient, specimens, or supplies
- ✓ Defects/rework
- ✓ Poor layout
- ✓ Poor scheduling

The Waste of Waiting

Waiting for the next event to occur or the next work activity can eat up time and resources. Patients waiting for an appointment is a sign of waste, as is employees waiting because their workloads are not level.



Whatever the cause, waiting adds unnecessary time and cost to the organization as well as reduces patient satisfaction.

Examples of the Waste of Waiting:



- ✓ For bed assignments
- ✓ Discharge
- ✓ Testing results
- ✓ Approvals
- ✓ Equipment
- ✓ Couriers
- ✓ People...

Waste of Motion

This waste occurs when we need to move to obtain information, instruments, equipment, materials, or other resources to complete a process. Each extra lift, turn, push, pull, or step adds time and cost.

Copy Machine
Main Desk
Exam Room
Supply Cabinet
Exam Table
Physician
Nurse

Other examples of **Waste of Motion** include looking for patients, specimens, treatment supplies, or test reports.

Do employees move from room to room, floor to floor and building to building more than necessary? That accounts for one type of waste.

For example, lab employees may walk miles per day due to a poor hospital layout.

Waste of Motion can also contribute to fatigue. When you are tired, you are more likely to make **errors** or produce **lower quality** work.

PHIA

Waste of Rework (defects)

Rework occurs whenever a task is not completed correctly the first time, so that one or more steps must be repeated.



This includes all time spent doing something incorrectly and inspecting or fixing errors.

One example of defect waste is the time spent looking for an item missing from a surgical case cart.



Examples of Defects

- ✓ Medication error
- ✓ Wrong procedure
- ✓ Wrong patient
- ✓ Missing information
- ✓ Paperwork doesn't match
- ✓ Information entered incorrectly
- ✓ Incompatible software
- ✓ Lack of standard work



Waste of Over Processing

Over processing is created by performing unnecessary work that does not add value for the patient or client.

This describes work performed that is not valued by the patient or is caused by definitions of quality that aren't aligned with patient needs.



One example is extra data stamps on forms, with the resulting data never being used.



Example of Over Processing

A hospital admissions department routinely completed a form for each patient checking in for day surgery and sent a document with the patient file.




Why? Admissions thought day surgery needed it.

Day surgery separated the document from the patient file and diligently filed the document by date.

Why? Day surgery thought it must be important because admissions had sent it!

Sometimes **over processing** is deliberately chosen as a method of preventing quality problems and errors. This is one approach to protecting ourselves against negative outcomes, but is it a great approach?




Besides being wasteful, over processing can sometimes even introduce new errors (e.g., duplication of information)

A better – and more Lean – approach is to determine the root cause for potential errors and design the root causes out of the process.



Waste of Not Utilizing/Underutilizing People's Skills

Wasting people's ideas or talents costs time and money, whereas staff engagement leads to increased staff satisfaction.





This waste is caused when employees are not engaged, heard or supported. Employees may feel burnt out and cease sharing ideas for improvement.

If employees are not properly trained or if they are given unnecessary tasks, their time is literally being wasted instead of being directed toward adding value to the organization.

Not Utilizing/Underutilizing Employees' Knowledge, Skills, and Abilities

- ✓ Causes of People Waste
- ✓ Incompatible hiring practices
- ✓ Politics
- ✓ Corporate culture
- ✓ Improperly trained employees
- ✓ Old guard thinking
- ✓ Business culture




More important than naming the waste is recognizing that waste exists and focusing on finding the underlying root cause instead of externally treating the symptoms.

This often means shedding old ways of thinking and, in effect, changing our paradigm.




How Does Waste Affect Me?

- ✓ Causes *physical fatigue*
- ✓ Causes *emotional fatigue*
- ✓ Increases *frustrations*
- ✓ Increases *stress*
- ✓ Causes you to *blame others*
- ✓ Steals your *time*




As you continue your journey in Lean practices, you will increasingly “see” what was previously “invisible.”

MHA



Lean Six Sigma: 8 Wastes

 Talent Underutilizing people's talents, skills, & knowledge.	 Inventory Excess products and materials not being processed.	 Motion Unnecessary movements by people (e.g., walking).	 Waiting Wasted time waiting for the next step in a process.
 Transportation Unnecessary movements of products & materials.	 Defects Efforts caused by rework, scrap, and incorrect information.	 Overproduction Production that is more than needed or before it is needed.	 Overprocessing More work or higher quality than is required by the customer.

The Challenge is to...

MHA



8 Wastes of Lean

- Defects
- Overproduction
- Waiting
- Transportation
- Inventory
- Motion
- Extra Processing
- Non-Utilized Talents

have the courage to see it as waste!

Why?

Because waste often hides itself as work!!

What is Voice of the Customer?

MHA



The “voice of the customer” (VOC) is a process used to capture the **stated and unstated** requirements/needs from the customer (internal/external) to provide the best-in-class service/product quality.

The Voice of the Customer



Who is the customer?

- Patient
- Patient's Family
- Patient's Physician
- The Payer
- Regulatory Agencies
- Other Caregivers



Voice of the Customer



To meet or exceed customer expectations, organizations must fully understand all product and service attributes that contribute to customer value and lead to satisfaction and loyalty – **called critical to quality (CTQ) characteristics.**



what our customers say

Customer Focus



- Customer is principal judge of quality
- Organizations must first understand customers' needs and expectations in order to meet and exceed them
- Organizations must build relationships with customers





The Voice of the Customer

The VOC can be captured in a variety of ways:

- Direct discussion or interviews
- Surveys
- Focus groups
- Customer complaints
- Observation

Voice of the Customer consists of both qualitative and quantitative methodologies.



The Voice of the Customer

The **Kano Model** is a tool that can be used to prioritize the Critical to Quality characteristics, as defined by the Voice of the Customer. The three categories identified by the Kano model are:

Must Be: The quality characteristic must be present or the customer will go elsewhere.

Performance: The better we are at meeting these needs, the happier the customer is.

Delighter: Those qualities that the customer was not expecting but received as a bonus.



Understanding the Voice of the Customer (Patient) is Critical

The impact of customer satisfaction on profitability is widely researched and reported.

A SATISFIED CUSTOMER IS THE BEST BUSINESS STRATEGY OF ALL

- For every patient complaining, there are 20 more who do not complain, but will not return.
- Understanding the patient's wants has an immense implication on the satisfaction, retention, staff morale, and profitability of an organization.



The Concept of Flow in an Organization

- ▶ **Create flow :**
Make the value-creating steps occur in tight sequence so the product will flow smoothly toward the customer.
- ▶ **Let the customer pull product through the value stream:**
Make only what the customer has ordered.



Flow in Healthcare



- When we think about flow in healthcare processes, we learn that there are many flows to consider
- Understanding the various flows in a process is a great first step in understanding opportunities for improvement
- Mapping or tracing the flows allows you to see waste in a process more clearly by creating a picture of all the factors that affect flow in a process



“Where there is a product (or service) for a customer, there is a value stream. The challenge lies in seeing it.”

Jim Womack, Lean Thinking

Process Definition

A process is a set of conditions or set of causes that work together to produce a given result. It includes inputs, outputs, transformations, and feedback.

A process is any work that meets the four criteria: it is recurrent, it affects some aspect of organizational capability; it can be accomplished differently so as to make contribution to customer and/or profit; it involves coordination.

Flow/Process Development Methods

- Traditional Flowcharting
- The SIPOC Diagram.

Value Stream Mapping

SIPOC – Flow Mapping

A High level method to assist in developing the flow on a process map is SIPOC.

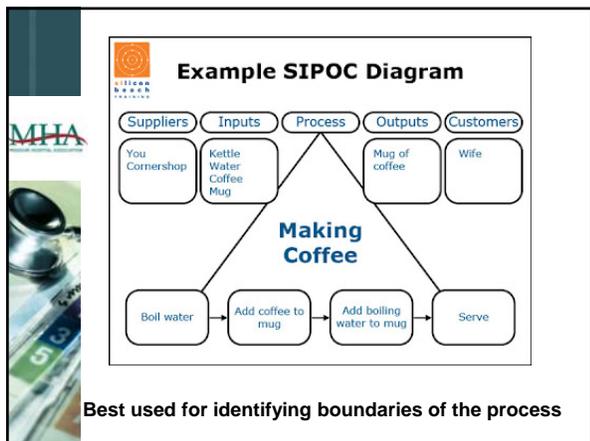
Suppliers: Who supplies the inputs to do the job?

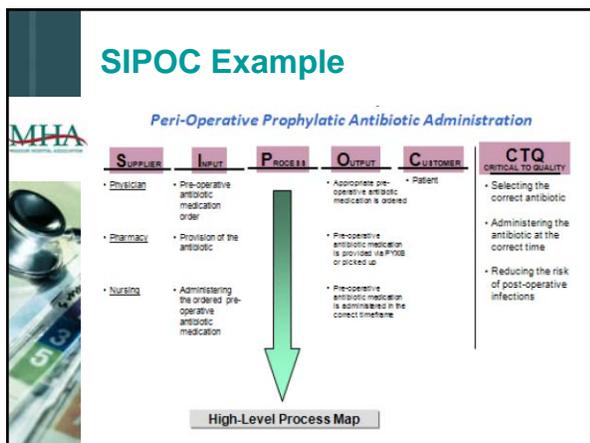
Inputs: What are the products/services that your suppliers give you?

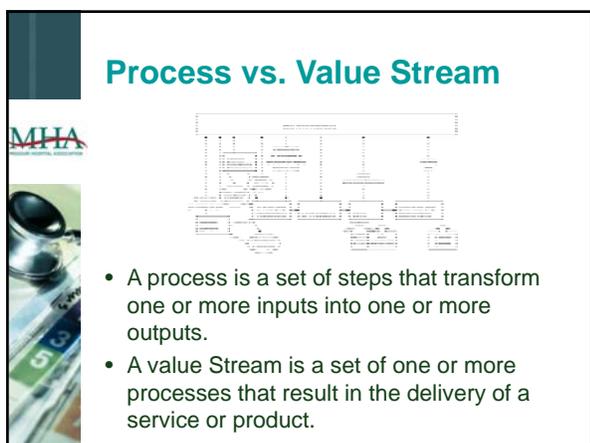
Process/Sequence: What are the steps to convert the inputs to outputs?

Outputs (products or services): What products or services are produced?

Customers: Who receives your products and services? What do they need? What are their requirements?

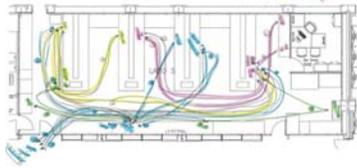






Barriers to Flow

- Senior Leadership Not Engaged
- Staff Resistance
- Existing building and equipment
- Employee culture
- Middle Management




Your Assignment

Waste Walk Exercise

Before you can fix a problem, you must first see it. However, the longer you're in the same place, the more difficult it is to see the waste around you.

Taking a "waste walk" is one way to make the waste visible again.





Take a Hike (or walk).....

It is a maxim in Lean thinking that to fix any problem you must first see the waste. However, the longer you have worked in a system, the harder it is to see the waste around you.

Taking a "waste walk" is one way to make the waste visible again. A waste walk is simply a planned visit to where work is being performed to observe what's happening and to note the waste.





Waste Walk Goals



- Engage & educate staff to facilitate cultural change
- Must easily identify waste with minimal training
- Allows for rapid transition into Lean projects
- Increase efficiency, safety and customer satisfaction while reducing the cost of care



Thank You!

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